

## ARISE - C-130 Hercules 09/16/14 Science Report

**Aircraft:**

[C-130H Hercules #439](#) ([See full schedule](#))

**Date:**

Tuesday, September 16, 2014

**Mission:**

ARISE

**Mission Location:**

Arctic Ocean

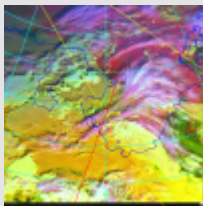
**Mission Summary:**

### Radiation Wall Pattern - Flt #10

Today's objectives were to fly a radiation wall pattern at one of three target areas over the sea-ice edge depending on which one appeared to have the best low cloud and cirrus free conditions at the morning weather check. There were high clouds just about everywhere, but one of the three areas (near 76N 139W) looked like it might cooperate with respect to the cirrus. When the C-130 reached the area, low clouds hugged the open ocean (south) side of the ice sheet with mostly clear conditions to the north. The pattern started with a series of four legs to characterize the sea-ice with LVIS, and to measure the spectral and broadband clear-sky and diffuse albedo. These were successfully accomplished. There were some scattered low-level clouds at about 5kft (cloud temperature was about +6C) that were sampled in situ and provided enough cover to measure the diffuse albedo from below. Attention was then turned to the low stratus deck to the south. The C-130 did a back and forth leg over the stratus measuring the radiative fluxes above the top of the cloud (at about 2kft with a top temperature near -2C) and briefly below the cloud bases near 500ft. The aircraft also slipped up and down into the cloud layer for in-situ measurements of super-cooled liquid water. A higher low cloud layer was sampled as the C-130 began the transit back to Fairbanks. All of the instruments were reported to work well and cloud and radiation data were collected coincident with 2 TERRA, 2 AQUA and 2 SNPP overpasses.

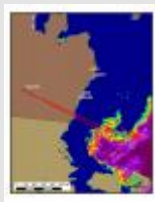
**Images:**

### September 16, 2014 Figure 1



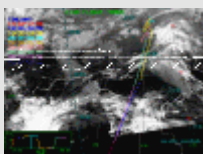
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### September 16, 2014 Figure 2



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### September 16, 2014 Figure 3



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## September 16, 2014 Figure 4



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## September 16, 2014 Figure 5



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## September 16, 2014 Figure 6



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### Submitted by:

William L. Smith Jr. on 09/17/14

### Related Flight Report:

## C-130 Hercules 09/16/14 - 09/17/14

### Flight Number:

Radiation Wall Pattern - Flight #10

### Payload Configuration:

ARISE

### Nav Data Collected:

No

### Total Flight Time:

8.3 hours

### Submitted by:

Martin Nowicki on 09/16/14

### Flight Segments:

<b>From:</b>	PAEI	<b>To:</b>	PAEI
<b>Start:</b>	09/16/14 17:19 Z	<b>Finish:</b>	09/17/14 01:35 Z
<b>Flight Time:</b>	8.3 hours		
<b>Log Number:</b>	<a href="#">141002</a>	<b>PI:</b>	Christy Hansen
<b>Funding Source:</b>	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
<b>Purpose of Flight:</b>	Science		

### Flight Hour Summary:

	141002	151004
<b>Flight Hours Approved in SOFRS</b>	229	
<b>Flight Hours Previously Approved</b>		88.7
<b>Total Used</b>	140.3	18.2

Total Remaining				70.5	
151004 Flight Reports					
Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining
<a href="#">10/02/14 - 10/03/14</a>	Cal Flight	Science	8.6	8.6	80.1
<a href="#">10/04/14</a>	Transit	Transit	9.6	18.2	70.5

**Source URL:** [https://airbornescience.nasa.gov/science\\_reports/ARISE\\_-\\_C-130\\_Hercules\\_09\\_16\\_14\\_Science\\_Report?destination=node/24613](https://airbornescience.nasa.gov/science_reports/ARISE_-_C-130_Hercules_09_16_14_Science_Report?destination=node/24613)

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*Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.*

<b>141002 Flight Reports</b>					
Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining
<a href="#">08/24/14</a>	Engineering Check Flight	Check	2.8	2.8	226.2
<a href="#">08/29/14</a>	Boom Calibration Flight	Check	0.5	3.3	225.7
<a href="#">08/30/14</a>	Project Check Flight	Check	5.2	8.5	220.5
<a href="#">09/01/14</a>	Transit (1 of 2)	Transit	8.7	17.2	211.8
<a href="#">09/02/14</a>	Transit (2 of 2)	Transit	6.6	23.8	205.2
<a href="#">09/04/14 - 09/05/14</a>	Arctic Ocean - Flight #1	Science	6.6	30.4	198.6
<a href="#">09/05/14 - 09/06/14</a>	140W Sea Ice - Flight #2	Science	7.1	37.5	191.5
<a href="#">09/06/14 - 09/07/14</a>	Ice ZigZag-Terra - Flight #3	Science	7.1	44.6	184.4
<a href="#">09/07/14 - 09/08/14</a>	CERES Gridbox - Flight #4	Science	8.4	53	176

<a href="#">09/09/14 - 09/10/14</a>	CERES Gridbox - Flight #5	Science	7.7	60.7	168.3
<a href="#">09/10/14 - 09/11/14</a>	MIZ Lawnmower - Flight #6	Science	8.8	69.5	159.5
<a href="#">09/11/14 - 09/12/14</a>	CERES Gridbox - Flight #7	Science	7.5	77	152
<a href="#">09/13/14 - 09/14/14</a>	CERES Gridbox - Flight #8	Science	8.3	85.3	143.7
<a href="#">09/15/14 - 09/16/14</a>	CERES Gridbox - Flight #9	Science	8.1	93.4	135.6
<a href="#">09/16/14 - 09/17/14</a>	Radiation Wall Pattern - Flight #10	Science	8.3	101.7	127.3
<a href="#">09/17/14 - 09/18/14</a>	CERES Gridbox - Flight #11	Science	7.2	108.9	120.1
<a href="#">09/18/14 - 09/19/14</a>	Sea Ice Albedo/CryoSat - Flight #12	Science	8.6	117.5	111.5
<a href="#">09/19/14 - 09/20/14</a>	Radiation Wall Pattern - Flight #13	Science	8.3	125.8	103.2
<a href="#">09/21/14 - 09/22/14</a>	Sea Ice & Radiation - Flight #14	Science	8.2	134	95
<a href="#">09/24/14 - 09/25/14</a>	Gridbox TOA+Surface - Flight #15	Science	6.3	140.3	88.7